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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,102	04/25/2001	Kenji Suzuki	401165	4985

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EXAMINER	
ENGLAND, DAVID E	
ART UNIT	**PAPER NUMBER**
2143	

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/841,102	SUZUKI ET AL.	
	Examiner	Art Unit	
	David E. England	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 2, 4 – 8, 10 – 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 4 – 8, 10 – 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 February 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

1. Claims 1, 2, 4 – 8 and 10 – 16 are presented for examination.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "correcting unit" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "detecting unit" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified

and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 2, 4 – 8 and 10 – 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

6. Claims 1 and 7 recite the use of a "correcting unit" but there is no description or drawings in the application that states or shows where or what the "correcting unit" is embodied on. Applicant is asked to amend the claims or point to the specification and drawings as to where the "correcting unit" is embodied on.

7. Claims 2, 4 – 6, 8 and 10 – 14 are rejected for similar reasons as stated above or for their dependency on claims 1 and 7

8. Claims 6 and 13 recite the use of a "detecting unit" but there is no description or drawings in the application that states or shows where or what the "detecting unit" is embodied on. Applicant is asked to amend the claims or point to the specification and drawings as to where the "detecting unit" is embodied on.

9. Claims 7, 8 and 10 - 16 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

10. Claims 7 and 15 recite the limitations of, a first global timer providing control to said devices through said network". This limitation is not disclosed in the specification nor is it described as to how the first global timer gives or "provides" control to said devices. The specification does state that a controller unit transmits a "periodic control command" to the devices 3a and 3b, but this is not giving control to a device. Furthermore, claim 15 further states "a second global timer that provides control to said devices connected to said second network", which is also not disclosed in the specification nor is it described as stated above. Applicant is asked to amend or clarify by pointing to sections of the specification and drawings the limitation provided above.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1, 2, 4 – 8 and 10 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voth (6351821) in view of Strong et al. (5689688) (hereinafter Strong).

13. Referencing claim 7, as closely interpreted by the Examiner, Voth teaches a periodic control synchronous system for synchronizing periodic control between a controller connected in a network and devices connected said network, wherein

14. said controller includes a first global timer providing control to said devices through said network, (e.g. col. 4, lines 34 – 53);

15. a control period timer which controls a control period for periodic control of said controller, (e.g. col. 4, lines 34 – 53);

16. a time stamp providing unit which provides a periodic transfer packet with a time stamp showing synchronous timing time of the control period designated by said control period timer by using global time indicated by said first global timer, (e.g. col. 5, lines 33 – 49); and

17. a transmitting unit which transmits the periodic transfer packet provided with the time stamp to said devices, (e.g. col. 5, lines 33 – 49), and

18. each of said devices includes a second global timer controlled through said network, (e.g. col. 6, lines 15 – 31); and

19. a periodic control unit which synchronizes operation period of said device with the control period using the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet transmitted by said transmitting unit and global time indicated by said second global timer, (e.g. col. 6, lines 32 – 54).

20. Voth does not specifically teach an operation period timer which controls operation period of said device itself;

21. a comparing unit which compares the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet transmitted by said transmitting unit and the global time indicated by said second global timer; and

22. a correcting unit which corrects said operation period timer by determining a time difference between the synchronous timing time of the periodic control indicated by the time stamp compared by said comparing unit and the global time indicated by said second global timer at the synchronous timing time indicated by said operation period timer, and determines a timer correction value of said operation control period timer based on the time difference.

23. Strong teaches an operation period timer which controls operation period of said device itself, (e.g. col. 13, lines 38 – 58);

24. a comparing unit which compares the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet transmitted by said transmitting unit and the global time indicated by said second global timer, (e.g. col. 13, lines 38 – 58); and

25. a correcting unit which corrects said operation period timer by determining a time difference between the synchronous timing time of the periodic control indicated by the time stamp compared by said comparing unit and the global time indicated by said second global

timer at the synchronous timing time indicated by said operation period timer, and determines a timer correction value of said operation control period timer based on the time difference, (e.g. col. 13, lines 38 – 58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Strong with Voth because it would be more accurate for the device to accommodate for the latency from the transfer time to the arrival time of the packet to achieve as close to the time designated by the master global time.

26. As per claim 8, as closely interpreted by the Examiner, Voth teaches said controller comprises a latch unit which latches the global time of said first global timer, and holds the timer latched, (e.g. col. 4, lines 34 – 53), and

27. said control period timer latches the global time of said first global timer in said latch unit at the synchronous timing of the periodic control designated by said control period timer, (e.g. col. 4, lines 34 – 53), and

28. said time stamp providing unit provides the periodic transfer packet with the time stamp having the global time latched by said latch unit, offset by a portion of the control period, (e.g. col. 4, line 54 – col. 5, line 6).

29. As per claim 10, as closely interpreted by the Examiner, Voth teaches said correcting unit includes a detecting unit which detects whether the time difference is within an allowable range, (e.g. col. 13, line 54 – col. 14, line 4),

30. corrects said operation period timer based on the timer correction value or the timer period correction value when the time difference is within the allowable range, and does not

correct said operation period timer when the time difference is outside of the allowable range, (e.g. col. 14, lines 5 – 23).

31. Referencing claim 11, as closely interpreted by the Examiner, Voth teaches a correcting unit which resets said operation period timer when the global time indicated by said second global timer reaches the synchronous timing time of the periodic control indicated by the time stamp, (e.g. col. 4, line 54 – col. 5, line 6 & col. 6, lines 32 – 54).

32. Referencing claim 12, as closely interpreted by the Examiner, Voth teaches said correcting unit resets said operation period timer when reaching the synchronous timing indicated by said operation period timer before the global time indicated by said second global timer reaches the synchronous timing time of the periodic control indicated by the time stamp, and resets said operation period timer again later when the synchronous timing time of the periodic control indicated by the time stamp at least reaches the global time indicated by said second global timer, (e.g. col. 4, line 54 – col. 5, line 6).

33. Referencing claim 13, as closely interpreted by the Examiner, Voth does not specifically teach said correcting unit includes a detecting unit which detects whether the time difference between the synchronous timing time of the periodic control indicated by the time stamp compared by said comparing unit and the global time indicated by said second global timer at the synchronous timing indicated by said operation period timer is within an allowable range, and

does not correct said operation period timer when the time difference is outside of the allowable range.

34. Strong teaches said correcting unit includes a detecting unit which detects whether the time difference between the synchronous timing time of the periodic control indicated by the time stamp compared by said comparing unit and the global time indicated by said second global timer at the synchronous timing indicated by said operation period timer is within an allowable range, and does not correct said operation period timer when the time difference is outside of the allowable range, (e.g. col. 13, lines 38 – 58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Strong with Voth because it would be more accurate for the device to accommodate for the latency from the transfer time to the arrival time of the packet to achieve as close to the time designated by the master global time.

35. Referencing claim 14, as closely interpreted by the Examiner, Voth does not specifically teach said correcting unit determines the timer period correction value of said operation period timer from the time difference between the synchronous timing time of the periodic control indicated by the time stamp and the global time indicated by said second global timer, and thereby corrects said operation period timer based on the timer period correction value.

36. Strong teaches said correcting unit determines the timer period correction value of said operation period timer from the time difference between the synchronous timing time of the periodic control indicated by the time stamp and the global time indicated by said second global timer, and thereby corrects said operation period timer based on the timer period correction value, (e.g. col. 13, lines 38 – 58). It would have been obvious to one of ordinary skill in the art

at the time the invention was made to combine Strong with Voth because it would be more accurate for the device to accommodate for the latency from the transfer time to the arrival time of the packet to achieve as close to the time designated by the master global time.

37. Claims 1, 2 and 4 – 6 are rejected for similar reasons as stated above.

38. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voth and what is well known in the art.

39. Referencing claim 15, as closely interpreted by the Examiner, Voth teaches a periodic control synchronous system synchronizing periodic control between a controller connected first and second networks, and devices connected to said first network and devices connected to said second network, wherein said controller includes

40. first global timer providing control to said devices connected to said first network, (e.g. col. 4, line 54– col. 5, line 6);

41. a control period timer which controls a control period of periodic control of said periodic control synchronous system, (e.g. col. 4, lines 34 – 53);

42. a time stamp providing unit which provides a periodic transfer packet transmitted periodically to said first network with the time stamp showing synchronous timing of the control period designated by said control period timer using global time indicated by said first global timer, (e.g. col. 4, line 54 – col. 5, line 6);

43. each of said devices connected to said first network includes a third global timer controlled respectively through said first network, (e.g. col. 6, lines 32 – 54); and

44. a periodic control unit which synchronizes an operation period of the corresponding device with the control period using the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet and global time indicated by said third global timer, (e.g. col. 6, lines 32 – 54). Voth does not specifically teach a second global timer providing control to said devices connected to said second network. It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a second global timer providing control to said devices connected to said second network, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.,* 193 USPQ 8.

45. Referencing claim 16, as closely interpreted by the Examiner, Voth teaches first latch unit which latches the global time of said first global timer, and holds the timer latched, (e.g. col. 4, lines 34 – 53), and

46. said control period timer latches the global time of said first global timer in said latch unit at the synchronous timing of the periodic control designated by said control period timer, (e.g. col. 4, lines 34 – 53), and

47. said time stamp providing unit provides the periodic transfer packet with the time stamp having the global time latched by said latch unit, offset by a portion of the control period, (e.g. col. 4, line 54 – col. 5, line 6). Voth does not specifically teach a second latch unit which latches the global time of said second global timer, and holds the time latched. It would have been

obvious to one having ordinary skill in the art at the time the invention was made to add a second latch unit which latches the global time of said second global timer, and holds the time latched, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.,* 193 USPQ 8.

Response to Arguments

48. Applicant's arguments with respect to claims 1, 2, 4 – 8 and 10 – 16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

49. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

50. a. Parry et al. U.S. Patent No. 5822381 discloses Distributed global clock system.

51. b. Arsenault et al. U.S. Patent No. 6587957 discloses Disk drive controller for controlling data flow therethrough by switching to secondary bus to receive clock pulses when a failure on master bus is detected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. England whose telephone number is 571-272-3912. The examiner can normally be reached on Mon-Thur, 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David E. England
Examiner
Art Unit 2143

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BUNJOB JAROENCHONWANIT
SUPERVISORY PATENT EXAMINER